

WHAT IS CLAIMED IS:

1 1. A communications system for transporting video data from a
2 centralized location to an end user, the system comprising:
3 a network that transmits video data to a video cache at a local center
4 located as close as possible to the end user;
5 a video cache at a local center capable of receiving video data from a
6 centralized location;
7 a customer premises device capable of receiving the video data from the
8 video cache; and
9 a stream manager that controls a video stream from a centralized location
10 to a local center.

11 2. The system of claim 1, wherein the network comprises any one or a
12 combination of multiple packet based networks, wherein the network carries video data
13 and control communications between the stream manager and the video cache

14 3. The system of claim 1, wherein the network comprises any packet
15 based network, wherein the network carries video data, the system further comprising
16 communication links, wherein the communication links carry control communications
17 between the stream manager and the video cache.

18 4. The system of claim 1, wherein the video cache at the local center
19 is capable of receiving video data from the centralized location at a transmission speed
20 somewhat faster than the speed at which the end user is capable of viewing the material.

21 5. The system of claim 1, wherein the video cache at the local center
22 is further capable of determining when a data packet has been corrupted or lost during
23 transmission and signaling to the centralized storage location to retransmit the necessary
24 data.

25 6. The system of claim 1, wherein the video cache based at the
26 customer premises is capable both of receiving video data from the video cache at the
27 local center at a speed somewhat faster than the end user is capable of viewing the
28 material and is capable of delaying the viewing of the video content for 3-30 seconds to
29 allow for a buffer to be created.
30

1 7. The system of claim 1, wherein the video cache based at the
2 customer premises is further capable of determining when a data packet has been
3 corrupted or lost during transmission and signaling to the video cache at the local center
4 to retransmit the necessary data.

5 8. The system of claim 1, wherein the video data may be previously
6 stored, live or a combination of previously stored and live.

7 9. The system of claim 1, wherein the stream manager is capable of
8 determining whether video content stored at the central location is a candidate for
9 archiving at the local center based upon:

10 available storage space in the local center video storage;
11 history of the content being previously accessed by end users served by
12 that local center; and
13 history of similar content being previously accessed by end users served
14 by that local center.

15 10. The system of claim 1, wherein the stream manager is further
16 capable of prioritizing the transmission of the various streams based on a combination of
17 the following:

18 the type of video data;
19 the amount of video data remaining in the caches which require refreshing;
20 the speed at which the end user is viewing the video; and
21 the necessity to retransmit data due to corruption of video data and lost
22 data packets.

23 11. The system of claim 1, wherein the stream manager is further
24 capable of determining the volume of video data being transmitted over the network and
25 distributing the total volume of video data over multiple networks, including transmission
26 over the public Internet.

27 12. The system of claim 1, wherein the stream manager is further
28 capable determining the instantaneous amount of bandwidth required to transmit the
29 video information to each end user and staggering the transmission of high bandwidth
30 instants with lower bandwidth instants in other video data streams to produce a smoother,
31 aggregated stream.

1 13. A method of transporting video data from a centralized location to
2 an end user, the method comprising:

3 transmitting, via a network, video data to a video cache at a local center
4 located as close as possible to the end user;

5 receiving, at a video cache at a local center, video data from a centralized
6 location;

7 receiving, at a customer premises device, the video data from the video
8 cache; and

9 controlling, via a stream manager, a video stream from a centralized
10 location to a local center.

11 14. The method of claim 13, wherein the network comprises any one or
12 a combination of multiple packet based networks, wherein the network carries video data
13 and control communications between the stream manager and the video cache

14 15. The method of claim 13, wherein the network comprises any
15 packet based network, wherein the network carries video data, the system further
16 comprising communication links, wherein the communication links carry control
17 communications between the stream manager and the video cache.

18 16. The method of claim 13, wherein the video cache at the local
19 center is capable of receiving video data from the centralized location at a transmission
20 speed somewhat faster than the speed at which the end user is capable of viewing the
21 material.

22 17. The method of claim 13, wherein the video cache at the local
23 center is further capable of determining when a data packet has been corrupted or lost
24 during transmission and signaling to the centralized storage location to retransmit the
25 necessary data.

26 18. The method of claim 13, wherein the video cache based at the
27 customer premises is capable both of receiving video data from the video cache at the
28 local center at a speed somewhat faster than the end user is capable of viewing the
29 material and is capable of delaying the viewing of the video content for 3-30 seconds to
30 allow for a buffer to be created.

1 19. The method of claim 13, wherein the video cache based at the
2 customer premises is further capable of determining when a data packet has been
3 corrupted or lost during transmission and signaling to the video cache at the local center
4 to retransmit the necessary data.

5 20. The method of claim 13, wherein the video data may be previously
6 stored, live or a combination of previously stored and live.

7 21. The method of claim 13, wherein the stream manager is capable of
8 determining whether video content stored at the central location is a candidate for
9 archiving the local center based upon:

10 available storage space in the local center video storage;

11 history of the content being previously accessed by end users served by
12 that local center; and

13 history of similar content being previously accessed by end users served
14 by that local center.

15 22. The method of claim 13, wherein the stream manager is further
16 capable of prioritizing the transmission of the various streams based on a combination of
17 the following:

18 the type of video data;

19 the amount of video data remaining in the caches which require refreshing;

20 the speed at which the end user is viewing the video; and

21 the necessity to retransmit data due to corruption of video data and lost
22 data packets.

23 23. The method of claim 13, wherein the stream manager is further
24 capable of determining the volume of video data being transmitted over the network and
25 distributing the total volume of video data over multiple networks, including transmission
26 over the public Internet.

27 24. The method of claim 13, wherein the stream manager is further
28 capable determining the instantaneous amount of bandwidth required to transmit the
29 video information to each end user and staggering the transmission of high bandwidth
30 instants with lower bandwidth instants in other video data streams to produce a smoother,
31 aggregated stream.